SCIENCE

FRIDAY, MAY 17, 1912

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THE PRESENT STATUS OF THE GENETICS PROBLEM[1]

THE problem of heredity has been attacked in four principal ways. Galton developed to a high degree what we may call the statistical method. His most important conclusions are embodied in his law of ancestral inheritance and his law of regression. According to the former, the two parents together contribute one half of the total inheritance of an individual, the four grandparents one fourth, the eight great-grandparents one eighth, and so on indefinitely. The law of regression attempts to state the average deviation of a fraternity from the mean of the general population in terms of the average deviation of the two parents. Recent investigations have shown that neither of these laws is true except for averages of large numbers of cases, and not in all cases even then. They are not applicable to individual cases, and are hence of no importance in the modern science of genetics, however important they may be in statistical problems in general.

In recent years the methods used by Galton have been developed by Pearson and others into a highly mathematical treatment of the subject of heredity, which has given us important means of dealing with the precision and reliability of data and enabled us to study certain types of correlation to advantage, but which has otherwise had comparatively little influence on the progress of genetics. The study of correlation between hereditary characters by statistical methods has not as yet led to

[1] Presidential address before the Washington Botanical Society, March 5, 1912.